

CHAPTER 5.0 AVOIDANCE, MINIMIZATION, AND MITIGATION

The purpose of this chapter is to identify mitigation during the NEPA and Section 404 permitting processes, and identifies potential measures to avoid or minimize impacts of environmentally detrimental effects of each Action Alternative of the project.

CEQ has defined mitigation in its NEPA regulations at 40 CFR 1508.0 to include: a) avoiding the impact altogether by not taking a certain action or parts of an action, b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and e) compensating for the impact by replacing or providing substitute resources or environments.

The Corps' mitigation requirements are described at 33 CFR 325.4(a):

“District engineers will add special conditions to Department of Army permits when such conditions are necessary to satisfy legal requirements or to otherwise satisfy the public interest requirement. Permit conditions will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable.”

Mitigation is considered by the Corps in two ways during the NEPA process and Section 404 permitting process: Applicant-proposed avoidance and minimization measures (referred to as design measures), and resource-specific mitigation measures intended to offset or compensate for unavoidable adverse impacts (referred to as mitigation measures). Other federal agencies will use this Draft EIS as part of their decision-making or consultation processes, and are asked as part of this process to comment on and/or propose additional design and mitigation measures pertinent to their permitting, authorization, or area of expertise.

Design measures are project design components incorporated into the design of Action Alternatives. A listing of design measures as it relates to each resource is described in this chapter (see Section 5.13 for NDOR-proposed mitigation measures that would be incorporated prior to, during, and after construction).

The Corps encourages the public and agencies to comment on the adequacy of the proposed mitigation and to suggest additional conditions that would avoid, minimize, rectify, or compensate for the identified impacts associated with the Action Alternatives. Mitigation measures will be addressed in the Final EIS and ROD and will include consideration of measures suggested by the public and agencies during the Draft EIS comment period.

Final mitigation requirements by the Corps will be based on the requirements of its regulations and the mitigation's adequacy and practicability to offset impacts on aquatic resources as a result of project construction that would be authorized by the Corps. Monitoring requirements for mitigation will be established as permit conditions. See Chapter 3.0 for a discussion of the existing environment and Chapter 4.0 for a discussion of the impacts that identifies the mitigation described in the following sections.

5.1 WILD AND SCENIC RIVERS

See Appendix A for the preliminary Section 7(a) Evaluation and a discussion of the impacts of the Applied-for Project on the Missouri River, a designated Wild and Scenic River. NPS, as a cooperating agency, provided input to the Corps and to NDOR and may propose mitigation measures for the Applied-for Project for the MNRR, but none are proposed at this time.

5.2 FISH AND WILDLIFE

The permanent area of impact for each alternative was determined during the preliminary design. Natural areas were considered during preliminary design to avoid and minimize impacts on these resources. Based on the widespread presence of wildlife, impacts on wildlife habitat could not be avoided by any alternative. Because fill material is proposed to be discharged into wetlands and waters of the U.S., impacts on fish habitat could not be avoided by any alternative. However, the impacts on habitat are negligible or minor for all Action Alternatives.

Fish and Aquatic Resources

The following are Applicant-proposed design measures incorporated in the preliminary design of all Action Alternatives as it relates to culvert placement:

- Conduct a cross sectional analysis to determine optimal design and placement of culverts.
- Design culverts such that they extend beyond the toe of the fill slopes.
- Evaluate the slopes, depths, and relative positions of the flow profile for various flow ranges with the goal to keep approaches to stream crossings to as gentle a slope as practical.
- Align culverts horizontally and longitudinally with the stream channel and minimize changes in the stream channel cross section at inlet basins to prevent debris plugs.
- Size culverts to provide water depths and velocities at low flow that are comparable to those found in upstream and downstream natural stream segments.

There are no significant impacts on fish and aquatic habitat to mitigate; therefore no resource-specific mitigation measures are proposed at this time for fish species. Federal, state, and local regulations for erosion and sediment control would be followed for all alternatives during construction. Mitigation of wetland impacts is discussed in Section 5.5.

Wildlife

The following are Applicant-proposed design measures that would be implemented for all Action Alternatives:

- Measures designed to reduce vehicle and deer accidents, such as the installation of warning signs in accordance with NDOR Animal Crossing Signs policy would be implemented for all Action Alternatives.

There are no significant impacts on wildlife habitat that require resource-specific mitigation. Wildlife that use the existing Missouri River floodplain and associated wooded bluffs for migration could continue to do so after road construction because the necessary fill for each Action Alternative in the floodplain would not be a barrier for wildlife movement.

Mitigation would include federal, state, and local regulations for erosion and sediment control would be followed for all Action Alternatives during construction. Mitigation of wetland impacts is discussed in Section 5.5. Wetlands provide habitat for many forms of wildlife.

Bald Eagles

There are no significant impacts on bald eagles or their habitat, and any impacts would be avoided through survey during active construction or performing certain construction activities outside of bald eagle nesting season. No resource-specific mitigation is proposed at this time.

5.3 PROTECTED SPECIES

Informal consultation is ongoing with USFWS. A Biological Assessment was prepared for Alternative A7 (NDOR's Applied-for Project) and is an attachment to this Draft EIS (see Appendix L). It is anticipated that USFWS would suggest avoidance, minimization, and mitigation techniques as they relate to federally listed T&E species in the Study Area.

5.4 WATER QUALITY

The following are Applicant-proposed design measures that would be implemented for avoidance or minimization of impacts relative to water quality for all Action Alternatives:

- Incorporation of vegetation along roadway drainage ditches to minimize erosion.

There are no significant impacts on surface water or groundwater that require resource-specific mitigation as long as BMPs are followed during and after construction.

Potential resource-specific mitigation measures may include all areas adjacent (contiguous, bordering, neighboring) to jurisdictional waters disturbed by construction be revegetated with appropriate perennial, native grasses, and forbs and maintained in this condition.

NDOR would obtain a Section 401 water quality certification and would incorporate any conditions required by the certification. Future roadway maintenance would be conducted using existing policies. Construction-related measures for water quality protection are provided in Section 5.13.

5.5 WETLANDS AND OTHER WATERS OF THE U.S.

The following are Applicant-proposed design measures that would be implemented for avoidance or minimization of impacts relative to wetlands and other waters of the U.S. for all Action Alternatives:

- Minimize the width of the embankment by designing a 3H:1V sideslope outside of the lateral obstacle clear zone.

For the Applied-for Project, NDOR incorporated into the design additional bridge lengths to minimize wetland impacts and improve floodplain connectivity.

Unavoidable impacts on wetlands and other waters of the U.S. would occur for any of the Action Alternatives. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required (Department of the Army and EPA 1990).

All Action Alternatives would require compensatory mitigation for unavoidable impacts on wetlands and other waters of the U.S. Options for compensatory mitigation, with hierarchy depending on the size, type, and locations of impacts, include (Department of the Army and EPA 2008, 33 CFR Parts 325 and 332):

- Purchase of mitigation bank credits.
- Securing in-lieu fee program credits.
- Permittee-responsible mitigation under a watershed approach.
- Permittee-responsible mitigation through an on-site and in-kind mitigation.
- Permittee-responsible mitigation through off-site and/or out-of-kind mitigation.

NDOR has coordinated with the Corps, NPS, USFWS, and NGPC on resource-specific mitigation. For the Applied-for Project, they have included a concept to restore historic side-channels and backwaters of the Missouri River in the 39-Mile District of the MNRR upstream of the Study Area as mitigation for unavoidable impacts on wetlands. The mitigation concept includes restoring approximately 8,700 feet of former Missouri River chutes. In addition, approximately 50 acres of existing wetlands would be enhanced. This restoration would preserve and restore ecologically important Missouri River floodplain and backwater habitat. Flow regulation and channel degradation in the upper reaches of the 39-Mile District has caused a loss of backwater areas. Wetland mitigation would also be provided in the form of removal of portions of the existing N-12 roadway to the existing grade. This would restore approximately 27 acres of wetlands.

While this mitigation concept was developed for the Applied-for Project, the premise of this concept would be viable for impacts to the other Action Alternatives, as impact types are similar. The Corps will review the compensatory mitigation concept for its appropriateness in off-setting unavoidable impacts to waters of the U.S.

NDOR indicated that efforts were made to refine the alignments of the practicable Action Alternatives to avoid wetlands and waterways and minimize impacts. At this stage in the project, the potential alignment of the roadway was evaluated based on preliminary design with the knowledge that adjustments can be made later in the process to minimize impacts on the natural and human environment. During final design, potential minimization of wetland impacts for the Applied-for Project would be evaluated subsequent to wetland delineation, and design alterations would be made to minimize wetland impacts where practical.

Other potential Section 404 Permit conditions related to stream channel impacts would include adding a minimum 50-foot vegetated buffer to any new stream channel created as the result of a channel change or realignment.

5.6 FLOODPLAINS

There are no significant impacts on floodplains that would require resource-specific mitigation. The Study Area is within the floodplain jurisdictions of Knox County and Niobrara, and floodplain development permit applications would need to be submitted to both Floodplain Administrators. The Nebraska DNR Floodplain Division would potentially review the floodplain permit applications. Bon Homme County does have a flood hazard map boundary or flood insurance rate map developed for identification of FEMA-designated floodplains.

Because the project exists within a FEMA-designated 100-year floodplain, encroachment into floodplains would be unavoidable. Through incorporation of the designed drainage structures (bridges and culverts), impacts of the project on 100-year floodplains are anticipated to have less than a 1-foot rise in the 100-year floodplain elevation. No floodways have been delineated in the Study Area as the 100-year floodplain has been approximated (no elevations have been developed).

5.7 VISUAL

The Action Alternatives cause a negligible to a moderate impact on the viewshed. NPS, in coordination with the Corps and NDOR, may propose some mitigation measures to decrease the visual impact for the MNRR as well as upon the NHT, but none are proposed at this time.

5.8 CULTURAL RESOURCES

No known archaeological resources would be impacted by any of the Action Alternatives; therefore, mitigation for archaeological resource impacts is not required.

5.9 RECREATION

There are no significant impacts on recreation that require resource-specific mitigation. Because the existing N-12 roadway is located within the MNRR and because all of the Action Alternatives would result in improved access from N-12 and improved hydraulic interaction between the bluffs and the Missouri River floodplain and possible improved recreation, no mitigation for the impacts of the Action Alternatives on the MNRR is proposed.

Due to their negligible effects, no mitigation is proposed for impacts on Bazile Creek WMA at this time.

5.10 PEDESTRIANS, BICYCLISTS, AND CANOEISTS

There are no significant impacts on pedestrians, bicyclists, or canoeists that would require resource-specific mitigation.

5.11 ACQUISITIONS AND RELOCATIONS

All Action Alternatives require new ROW. During preliminary design, many factors were considered, including the locations of existing property boundaries and access roads, to avoid and minimize impacts. However, following property boundaries is not always possible given constraints such as terrain, the location of crossroads, and other natural and human made features. For Alternatives A1 and A2, because the new roadway must be constructed at a higher elevation than the existing N-12 roadway, it is impossible to avoid taking additional ROW. Alternatives A3 and A7 are

on new alignments, requiring new ROW. Landowners would be compensated for any private lands that are converted to NDOR ROW, including those to which NDOR cannot maintain access.

No relocations are required by any of the Action Alternatives, and therefore no mitigation is necessary. Damages related to land, structures, and amenities would be mitigated in accordance with the Uniform Act, as amended, and the Nebraska Relocation Assistance Act.

5.12 PERMITS

NDOR would obtain all necessary permits, clearances, and certificates from the appropriate federal, state, and local agencies prior to project construction.

5.13 CONSTRUCTION

The following provides both NDOR proposed and proposed conditions that the Corps has identified as potential measures to be implemented during construction. The Corps encourages agencies and the public to comment on these proposed conditions. The Corps will make final determinations for mitigation measures during construction in the Final EIS and ROD.

Fish and Wildlife

NDOR proposed construction related mitigation measures:

- Any temporary structures (culverts, bridges) that NDOR may need during construction would be appropriately sized to allow for water conveyance and fish passage.
- Tree removal in forested upland and forested wetland areas would be limited to those areas required for road construction.
- Disturbed habitat in rangeland areas would be restored by seeding the disturbed areas with a native grass and forb mixture. This would stabilize soil and decrease soil erosion and may lead to increased plant diversity in these areas.
- NDOR's Noxious Weed Control specifications would be used to control the establishment and spread of noxious and invasive weeds.
- Temporarily impacted areas would be revegetated following construction according to NDOR's Roadside Planting Plan. Re-seeding roadsides with native plant mixtures.
- NDOR would follow its procedures outlined in the Avian Protection Plan (NDOR 2014d) as it pertains to clearing, grubbing, utility relocations, and tree removal.
- To the extent possible, vegetation-clearing activities along the riparian corridor would be completed outside of the migratory bird nesting period (primarily between April 1 and July 15) to avoid or minimize adverse impacts on nesting migratory birds. Should clearing activities be required during this time period, a survey of the affected habitats would be conducted to determine if nesting migratory birds are present. This survey would be coordinated with USFWS and the results submitted to USFWS to determine if any migratory birds would be affected.
- Potentially impacted areas should be surveyed prior to construction for the presence of bald eagle nest and roost sites within 0.5 mile of the project. During the winter prior to

construction, the project should be surveyed to determine the precise location and number of eagles using the roost in the vicinity of the project. If a nest is discovered, no activities associated with construction should occur within 0.5 mile of the nest site from February 15 to July 15.

- The impact on wintering bald eagles can be minimized by completing tree clearing activities outside the wintering period of December 15 through February 20. Mitigation for trees removed within forested (PFO) wetlands would be addressed in the mitigation plan as part of the Section 404 permitting process.
- As discussed for water quality, sediment, erosion control, and spill prevention measures would be developed and included in a SWPPP to prevent increases in total suspended solids and pollutants that could cause harm to fisheries.

Threatened or Endangered Species

NDOR proposed construction related mitigation measures:

- For the ABB, impacts due to construction include the removal and compaction of soils that are important to the beetle's life cycle. Once earth has been compacted and surfaced, it is unlikely that these areas would be suitable habitat for the beetle. In addition, the species could be inadvertently buried during construction. A survey would be conducted for this species prior to construction. If appropriate conservation conditions are followed, all Action Alternatives may affect, but are not likely to adversely affect, the ABB, if present.
- A habitat survey for the northern long-eared bat would be conducted prior to construction.

Water Quality

NDOR proposed construction related mitigation measures:

- For water quality, the contractor would be required to implement Corps permit conditions and NDOR construction manual BMPs to minimize temporary impacts on water quality during construction:
- NDEQ administers the federal NPDES program and issues general permits for stormwater discharges from construction activities. The purpose of the program is to improve water quality by reducing or eliminating contaminants in stormwater. The NPDES program requires preparation of a SWPPP for construction sites of more than 1 acre.
- Upon award of the contract, the Contractor develops the Spill Plan, specific to his/her operations, and submits it for inclusion in the SWPPP. That would be unavailable at the time of Corp permitting
- For construction on Santee Sioux Tribe land, coordination with Santee Sioux Tribe and/or EPA would be required to obtain a stormwater discharge permit for construction activities.
- The specific sediment, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the Corps permit, and therefore within the plans and specifications. The SWPPP would address NDOR requirements specified in its construction manuals. It is likely that the SWPPP would include installation of silt fences, buffer strips, or other features to be used in various combinations as well as the stipulation that drums of petroleum products be placed in secondary containment to prevent

leakage onto ground surfaces. As part of standard construction BMPs, water detention basins could also be constructed to minimize pollutant loading of surface waters. Another standard construction BMP is revegetation and stabilization of roadside ditches to provide opportunities for the runoff from the impermeable area to infiltrate, reduce the velocities, and minimize increases in sedimentation.

- Stormwater discharge permits for construction activities would be obtained from NDEQ prior to construction of the project.

Wetlands and Other Waters of the U.S.

NDOR proposed construction related mitigation measures:

- After construction, all temporary impacts occurring in wetlands must be returned to pre-construction conditions, seeded with native vegetation, and monitored to ensure successful wetland reestablishment.

Floodplain

NDOR proposed construction related mitigation measures:

- The activity will comply with state of Nebraska FEMA designated floodplain requirements. FEMA requires that construction within a floodway achieve a no-rise condition (that is, not increase the base 100-year flood elevation). Project activities in the floodplain must be designed to ensure that the 100-year (1 percent annual chance) flood is conveyed without increasing the flood height by more than 1 foot.

Cultural Resources

NDOR proposed construction related mitigation measures:

- If presently unknown buried archaeological deposits, including human burials, are discovered during construction, work would halt pending full consultation with Nebraska SHPO regarding a plan of further required action (NDOR Standard Specification 107.10).
- If archaeological sites cannot be avoided, comprehensive archaeological data recovery under a Memorandum of Agreement would need to be developed in consultation with all parties and implemented (Ludwickson 2009).
- Encountering human burials requires action under the Nebraska Unmarked Human Skeletal Remains and Burial Goods Protection Act. Under the provisions of this act, when human skeletal remains and burial goods are discovered and law enforcement determines that a crime is not involved, Nebraska State Historical Society (NSHS) staff would be contacted by the appropriate county attorney's office. The staff would be required to conduct an onsite investigation to determine the origin and identity of the remains and promptly relate their findings in writing to the county attorney and interested parties, who may include a descendant Indian tribe, a descendant family, or the Nebraska Indian Commission. Field evaluations may consist of inspection of disinterred or intact remains or artifacts. Disinterred remains may be collected and turned over to descendent parties or the county attorney for reburial. Intact remains are to be left in place. The only specified exception to this procedure

involves intact materials encountered during public highway, road, or street construction. These remains may be excavated and reinterred to allow continuation of construction (NSHS 2010).

- The excavation and inadvertent discovery provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) apply only to federal and tribal lands. Under NAGPRA, tribal lands are lands (including private lands) within the exterior boundaries of an Indian reservation. If the burial ground is not on federal or tribal land, then the excavation and inadvertent discovery provisions of NAGPRA do not apply. However, other state and federal cultural preservation laws apply, and state or local cemetery laws may also apply (NPS 2010b).

Recreation

NDOR proposed construction related mitigation measures:

- To the extent practicable, NDOR would minimize disruption in access to all recreation locations while the roadway is under construction.

Acquisitions and Relocations

NDOR proposed construction related mitigation measures:

- Impacts of ROW would be offset by payment of fair market value for the property rights and damages that may occur as a result of the taking. The Uniform Act would be followed.

Utilities

NDOR proposed construction related mitigation measures:

- All utilities in the area shall be notified of this project.
- It is the responsibility of the Contractor to notify utility companies of relocation needs during the construction phase of the project for utilities that were not relocated prior to construction.

Land Use

NDOR proposed construction related mitigation measures:

- To the extent practicable, access to businesses, residences, and other recreational facilities would be maintained during construction. Any potential access restrictions would be coordinated prior to restrictions.

Noise

NDOR proposed construction related mitigation measures:

- BMPs in accordance NDOR construction manuals would be used to mitigate construction-related noise impacts.

Regulated Materials

NDOR proposed construction related mitigation measures:

- In the event that an unlisted disposal area or contamination is found, materials should be segregated and sampled for hazardous constituents. Title 128, Nebraska Hazardous Waste Regulations (Chapter 3) should be followed to determine if the material is a hazardous waste.
- Bridges being removed as part of any alternative will be evaluated for the presence of asbestos and lead-based paint. If the method of removal of the bridge generates paint debris, the waste shall be handled in accordance with NDOR's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128, Nebraska Hazardous Waste Regulations. Prior to activities at the bridge sites, the structures must be thoroughly inspected for the presence of asbestos-containing material (ACM). All suspect ACM must be sampled and laboratory analyzed or is assumed to contain asbestos and must be handled as such. Suspect ACM associated with bridge structures may include, but are not limited to: utilities attached to the structure, joint compounds or sealers, and deck overlays. The inspector must be certified in accordance with the Nebraska Department of Health and Human Services (DHHS) Nebraska Asbestos Control Program Regulations, Title 178. If ACM is found to be present, removal and disposal of the ACM shall be in accordance with DHHS Nebraska Asbestos Control Program Regulations, Title 178, and would occur prior to any bridge demolition or renovation activities. The contractor shall develop a removal and disposal plan in coordination with a licensed Asbestos Removal Contractor and NDOR.

Air Quality

NDOR proposed construction related mitigation measures:

- The following BMPs from NDOR construction manuals would be implemented to minimize air quality impacts during construction:
 - Equipment would not be concentrated at locations near any sensitive receptor sites, and no single piece of equipment would result in significant pollution concentrations.
 - Construction contractors would be required to comply with the statutory regulations for Nebraska for air pollution control and to receive permits, as needed.
 - Construction contracts would stipulate adherence to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits.
 - A schedule of water sprinkling would be developed and followed to control dust.

Social

NDOR proposed construction related mitigation measures:

- In accordance with standard practice, NDOR would notify the public at the start of construction by placing notices in the newspaper 14 calendar days prior to construction, and electronic message boards may be used prior to the beginning of construction activities.

NDOR would also notify emergency services such as police and fire departments before construction activities begin, as well as maintain continued coordination throughout construction. Emergency service providers would be invited to the pre-construction meeting for this project.

- As part of a traffic control plan, standard safety measures would be implemented to help protect the safety of motorists and pedestrians during construction.

Economics

See Land Use, above.

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